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# ADAPTING THE ENVIRONMENT

## RANCHING, IRRIGATION, AND DRY LAND FARMING IN SOUTHERN ALBERTA, 1880-1914

A. A. DEN OTTER

For centuries the nutritious grasses of the southwestern fringe of the Canadian prairies supported an abundance of game, providing ample food for its nomadic peoples. Not until the middle of the nineteenth century did anyone look to this area as a farming frontier.<sup>1</sup> By the 1850s, however, the curiosity of Canadians about it was increased by a need for new territories for investment, scientific estimates that the land was more favorable for agriculture than had previously been believed, and the fiery rhetoric of expansionist journalists.<sup>2</sup> The need for more accurate knowledge prompted the Canadian and British governments to send scientific expeditions to Rupert's Land, the vast area that drained into Hudson's Bay. The Canadian party, led by geologist

H. Y. Hind, and the British group, under the command of Captain John Palliser, identified a fertile belt along the Saskatchewan River and a large arid region to the south (fig. 1).<sup>3</sup> The prairies, an environment to be adapted to perceived needs, had taken on new economic value, a utility that could be realized only through exploitation.

Acquiring the Northwest from the Hudson's Bay Company took a decade and wresting the land from the native peoples another.<sup>4</sup> Once Canadian ownership was secured, the struggle for control and means of exploitation continued. The government land policy as set forth in the Dominion Lands Act called for the settlement of one family on every two quarter sections of land, but some areas of the prairies were unsuited for intensive cultivation. The extent of the barren land, soon known as Palliser's Triangle, varied with the attitude of the speaker toward colonization of the West. In the southwestern fringe of the prairies, which was semiarid, ranchers argued that the habitat was ideally suited for grazing, that it required no investment to adapt it for utilization. Farmers, on the other hand, insisted that with modern irrigation techniques the environment could accommodate inten-

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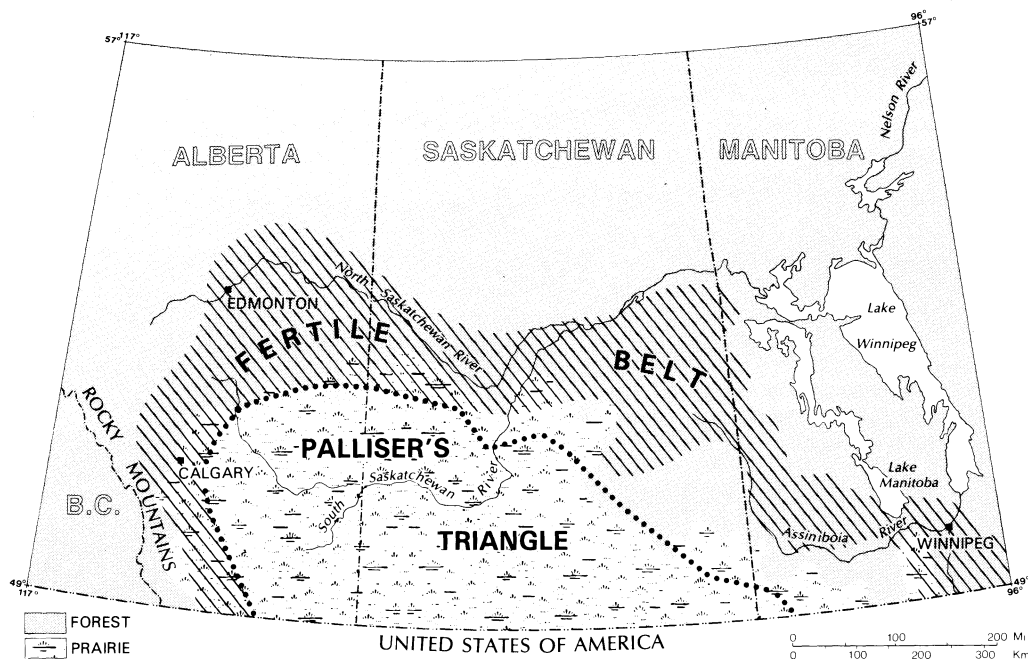


FIG. 1. Vegetation Zones: Western Canada.

sive cultivation. Complicating the debate, promoters of dry land farming declared that their techniques were capable of farming the wilderness. So there were three views of the land's arability. Proposed land use defined the character of the habitat. Supporting the federal government's search for new lands, Canadian officials of the International Boundary Survey and the North West Mounted Police agreed that, except for some undefined "limited area," the western plains were suitable for agriculture.<sup>5</sup>

Plans for a transcontinental railway dissolved the last doubts about the arability of the plains. Defiant of all geographical barriers and immune to most weather conditions, the railway assumed a mythical status so intense that many promoters accepted the most optimistic assessments of the territories through which they projected their routes. The lushness of the prairies during a particularly wet cycle at the end of the 1870s prompted John Macoun, an irrepressible botanist, to declare that virtually all the northwestern interior was

habitable. Desiring to build the shortest line practical, as close to their American rivals as possible, the directors of the Canadian Pacific Railway eagerly accepted Macoun's enthusiastic appraisal. They routed the CPR through the southern prairies, the heart of Palliser's Triangle.<sup>6</sup> Forced to defend the CPR's route change, Sir Charles Tupper, the minister of railways and canals, gushed exuberantly, "We believe we have [on the prairies] the garden of the world," a view readily parroted by his Conservative colleagues.<sup>7</sup> Compelled by the change in railway plans to examine the southern plains, the department asserted that appearances were deceiving and argued condescendingly that an experienced surveyor could recognize fertile land where a newcomer might see only barren country.<sup>8</sup>

The official assessment of western climate and soil fertility was made by outsiders who imposed upon the region an image colored by their agricultural interests. Tragically, the white comer's ethos discounted the value of the landscape's natural life, and soon his

efficient guns destroyed the abundant game that had blanketed the grasslands while surveys and railways transformed the commonly held expanse into privately owned real estate.<sup>9</sup> Starvation forced the original prairie people to abandon their traditional way of life and accept integration into a new economy.<sup>10</sup>

#### CATTLE RANCHING

For several decades, cattle ranchers filled the vacuum left by the disbanded natives and decimated game. The same physical features that had sustained wildlife proved ideal for pastoral use (fig. 2). Nutritious shortgrasses furnished abundant food throughout the summer, numerous coulees and river valleys provided shelter from vicious winter storms, while

warm Chinook winds regularly melted the snow cover.<sup>11</sup> Utilizing their political influence, a small number of central Canadian and British businessmen extracted large grazing leases from the Dominion government (fig. 3). By 1887, barely a dozen big companies occupied nearly ten million acres of prime grasslands, a development ideally suited to the semiarid ecology but clearly contrary to the government's homestead policy and an offense to land-hungry settlers.<sup>12</sup>

The privileged position of the ranchers sparked a bitter struggle for control of western lands. When the North West Mounted Police evicted several squatters from the grazing leases, public reaction was so hostile that in 1892 the government opened the leases to settlement. It also required the ranchers to



FIG. 2. *The prairie grasslands were ideally suited for grazing.* Public Archives of Canada.

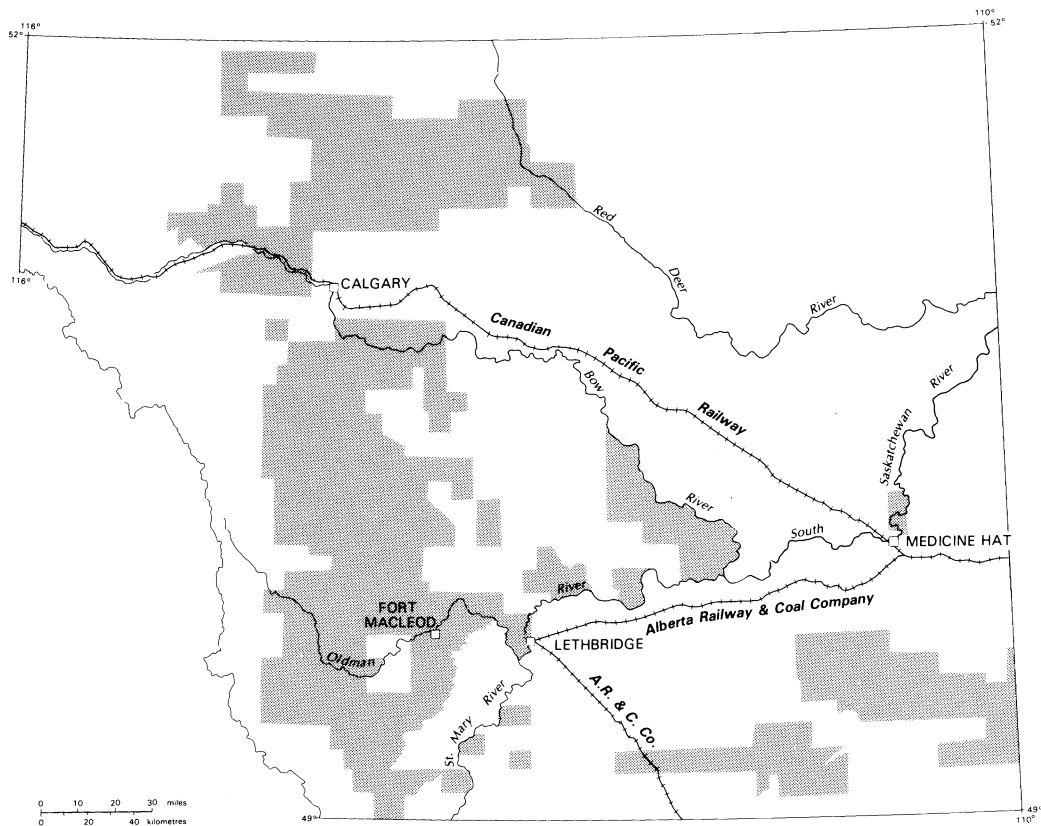


FIG. 3. Southern Alberta: Leased Grazing Lands 1886.

purchase at least one-tenth of their leases at \$1.20 an acre, a concession that the affluent among them quickly accepted.<sup>13</sup>

Undaunted, the ranchers developed a more effective means of maintaining control over the rangelands. A key player in the formation and implementation of this strategy was William Pearce, nominally the Dominion government's inspector of mines but actually its general agent in the Northwest. A surveyor by training, Pearce had an unusual appreciation of conservation and planning. Believing that reckless and destructive exploitation of prairie soil could destroy that invaluable natural resource, he called for its wise and systematic utilization.<sup>14</sup> In the mid-1880's, with the enthusiastic backing of the ranchers, he launched a vigorous campaign for the creation of stock water reserves on the semiarid western

prairies.<sup>15</sup> Pearce warned the government that squatters were fencing off rich riverbottom lands and lake shores. Fences rendered useless thousands of acres of surrounding semiarid grasslands by preventing cattle from reaching these rivers, lakes, or sloughs for water or shelter. Arguing that the government should protect the ranching industry, Pearce suggested reserving from settlement all lands surrounding crucial bodies of water in the Calgary, Macleod, and Medicine Hat triangle.<sup>16</sup>

Deferring to the politically powerful ranchers, the Conservative government in December 1886 declared that large sections of the southwestern prairies were closed to agricultural settlement.<sup>17</sup> William Pearce applied this policy in uncompromising fashion, evicting numerous squatters from the water reserves,

seldom bothering with cumbersome court proceedings. When written warnings failed to dislodge squatters, he encouraged ranchers, under police supervision, to pull down farm buildings.<sup>18</sup> Although these tactics aroused bitter resentment, Pearce never doubted that they were necessary to save the range for grazing; by 1896 he had protected virtually all the southwestern streams and rivers so that settlement was nearly impossible within a broad band running along the foothills south of Calgary to the American border. It was a significant victory for the ranchers, an unwritten accommodation permitting them to maintain their dominance on the southwestern plains.<sup>19</sup>

The water reserve system represented the ranchers' attempt to have the Southwest treated as a distinct geographical region, a peculiar physiography that needed protection to maintain its character and potential. Such a policy required a high degree of government supervision and regulation; it demanded, for example, that the North West Mounted Police assume the unpopular and onerous responsibility of protecting the vested interests of absentee central Canadian and foreign investors.<sup>20</sup> Its success, however, hinged entirely on the region's relative isolation and the ranchers' political power. Those were precarious preconditions, especially by the end of the nineteenth century.

#### RAILWAYS AND IRRIGATION

The ranching preserve began to crumble in the mid-nineties. Leading the onslaught was the Alberta Railway and Coal Company. Originally launched as a coal-mining enterprise, the AR&CC had earned 1.1 million acres of land as a subsidy for building a railway eastward from its collieries at Lethbridge to the Canadian Pacific mainline near Medicine Hat and another southward to Montana. Fully aware of the aridity of its properties, the company intended to sell land to ranchers rather than farmers and, under an amendment to the Dominion Lands Act, it received a

bonus in alternate townships rather than the prescribed sections.<sup>21</sup> Despite the unusual concession, the company could not compete with the government's generous leasing policy; by 1889, the company had sold less than an eighth of its grazing land and was looking for profitable options.<sup>22</sup> One alternative was the sale of nearly ten thousand acres near the present town of Cardston to Charles Ora Card, a charismatic Mormon leader. Card, who intended to settle a number of Mormon families on this land, had had extensive irrigation experience in Utah and proposed an irrigation scheme for southern Alberta. Although the plan was premature and failed to attract financial backers, it created a whole new perspective on Alberta's semiarid lands.<sup>23</sup>

One of the strongest advocates of irrigation was the AR&CC's land commissioner, Charles A. Magrath. An aggressive executive, and a prominent territorial politician, Magrath was the ideal champion of irrigation. Like many late-nineteenth-century Canadians, he had a vision of reconstructing the western wilderness into a productive, civilized society.<sup>24</sup> Central to his argument was the theme that the land had little economic worth in its natural state. But, he declared, "by assisting irrigation the balance of [these] lands will be so enhanced in value that one acre will bring as much as five acres and ten acres in other districts where irrigation is not absolutely required."<sup>25</sup>

The territorial press, particularly the *Lethbridge News*, joined the call for irrigation. Cognizant of the benefits of irrigation to the local economy, the *News* insisted that the federal government, as the largest landowner in the territories, should assume the cost of initial surveys and water measurements, an expensive but necessary step to prevent a costly and inefficient conglomeration of haphazardly built irrigation ditches. The government should also provide assistance to private firms to build the necessary works. Subsidies were justified because irrigation ditches were essential to settlement. "Railway after railway may be built through a section of the country

until it is covered with a network of iron rails," the *News* asserted, "but the country will never be a paying speculation until there is agricultural production."<sup>26</sup> By the mid-1890s, therefore, an influential number of local residents no longer perceived their immediate environment to consist of valuable rangelands. The land's economic value could be realized only through intensive cultivation: the natural habitat had to be changed to suit the occupier. This was a fundamental transformation in environmental perceptions.

Modifying the environment was not among the priorities of federal administrators and politicians. Worried that a debate on irrigation might damage the image of the Northwest among prospective settlers, the deputy minister of the interior, A. M. Burgess, warned his officials to "deal gently with the question" because "at this stage of the history of the country, much harm would result from any public discussion which would seem to indicate that any considerable proportion of the land is unfit for cultivation except by the aid of irrigation."<sup>27</sup> Even western politicians refused to accept the need for irrigation. Voicing the prevailing sentiment that the entire West was suitable for cultivation, R. Watson, the member of parliament from Manitoba, angrily denounced the proponents of irrigation for circulating reports that sections of the prairies were arid.<sup>28</sup> Faced with a serious economic slump and a sluggish flow of settlers into the Northwest, few politicians felt any need for an experimental program of questionable necessity.

Government opposition to irrigation could not last indefinitely. A prolonged drought, which began in the Southwest in the late 1880s and lingered into the early 1890s, created the nagging fear that perhaps dryness was the prevailing feature. Angry farmers, haunted by the specter of failure, agitated for relief, blaming the CPR and the Canadian government for leading them to the western prairies. In this climate of opinion, the persistent arguments of Magrath and the southern Alberta press began to take effect. So did

rumors that Montana was planning to divert part of the St. Mary River for an irrigation scheme of its own, thus threatening the Canadian project.<sup>29</sup>

The Canadian government was being forced to acknowledge the necessity of irrigation in southern Alberta also because it was finding it difficult to meet the land subsidy requirements of the Canadian Pacific Railway. The transcontinental's subsidy stipulated that the lands must be fit for settlement and the company was reluctant to accept the semiarid lands west of Medicine Hat. The problem was the scarcity of suitable land elsewhere in the territories, and so CPR President William Van Horne accepted William Pearce's arguments that irrigation could make southern Alberta lands useful and valuable.<sup>30</sup> However, irrigation was possible only if the railway company owned all the lands in a single block so that it would not have to dig its canals and laterals through private property. Only if the government granted the lands in southern Alberta as a large single block, Van Horne insisted, would the CPR "take the chance of them being hereafter made available for settlement and cultivation by some comprehensive system of irrigation."<sup>31</sup>

The powerful railway lobby, backed by strident public opinion, forced the government to reassess its anti-irrigation stand. Instrumental in reappraising its policy was William Pearce. Always an ardent advocate of western resource development, Pearce believed that irrigation could remedy the irregularity of rainfall on the southwestern prairies. Since 1885 his reports to the Department of the Interior had urged the central government actively to encourage extensive irrigation projects and to preserve the region's scarce water resources through careful regulation. Keeping closely in touch with American and other irrigation associations and publications, Pearce learned that large-scale projects were the only efficient users of water and soil.<sup>32</sup> To demonstrate that irrigation was feasible, Pearce attempted a pilot project near Calgary in the 1890s but experienced countless difficulties

assembling land. He faced considerable public opposition and failed to gather the necessary financial backing. Eventually, the Department of the Interior ordered him to abandon his personal involvement in the irrigation scheme, at considerable financial loss.<sup>33</sup>

By 1894 the government had accepted the desirability of irrigation for the western fringe of the prairies and determined to ensure its orderly implementation. A. M. Burgess urged the government to support the CPR irrigation scheme because "the growing of cereals could only be rendered safe and sure by the application of an extensive and scientifically planned system of irrigation."<sup>34</sup> After consultations with western Canadian, American, and other irrigation experts, the government in July 1894 passed the North West Irrigation Act, making

itself the sole owner of all the western interior waters and providing for their controlled development.<sup>35</sup> In the summer of 1895, J. S. Dennis, the chief inspector of surveys and an active supporter of irrigation, launched a comprehensive survey of southern Alberta rivers "so that an intelligent control might be exercised in the application of the available water supply for the reclamation of unproductive areas."<sup>36</sup> After several years of exhaustive expeditions, Dennis determined that irrigation was possible at several locations across the southwestern plains, including the St. Mary River. Lastly, the government allowed the AR&CC to consolidate most of its lands into a solid block south of Lethbridge (fig. 4).<sup>37</sup>

Government studies and concessions did not spur the immediate completion of the two

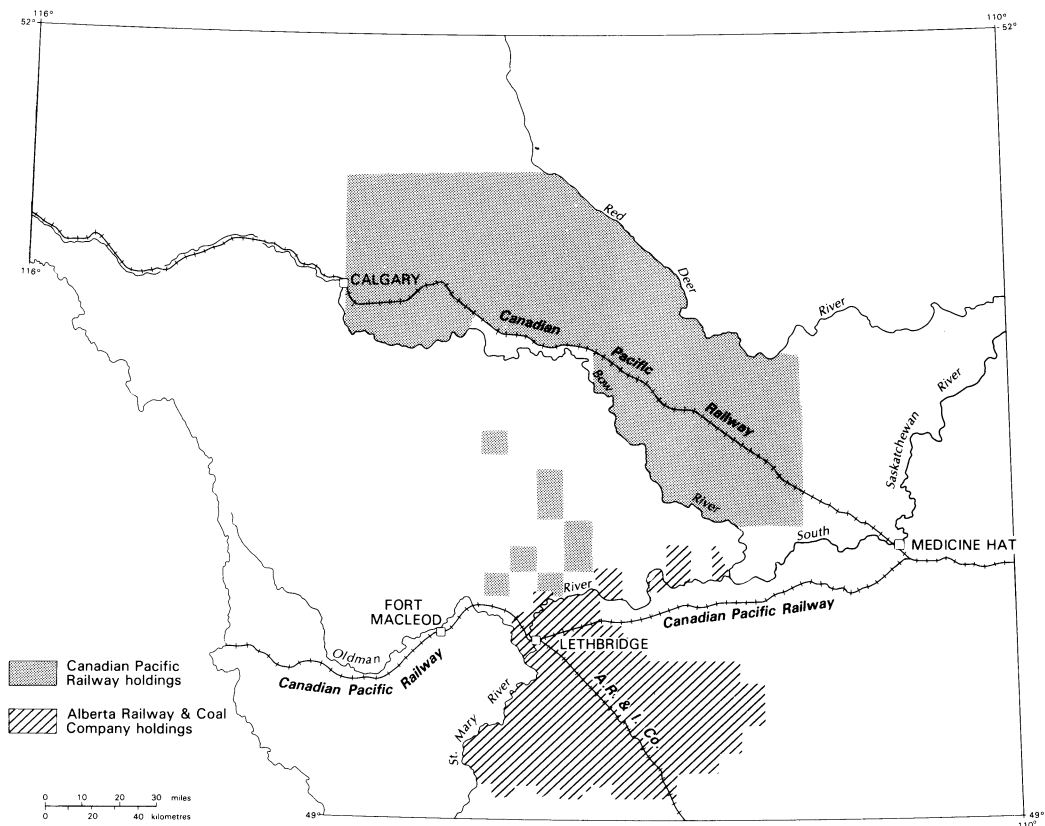


FIG. 4. Southern Alberta: Land Granted En Bloc.



large-scale irrigation projects, the Bow River and the St. Mary River schemes. Although a feasibility study concluded that the Bow River could irrigate about two million acres of farmlands, the CPR's directors refused to approve the project.<sup>38</sup> With a federal election near at hand, officials of the CPR, as well as of the AR&CC decided to delay the implementation of any extensive irrigation works. The long-lived Conservative administration still refused emphatically to grant financial assistance to any project as long as lands with adequate rainfall were available elsewhere on the prairies.<sup>39</sup> While local promoters recognized the need for irrigation, central Canadian and foreign investors took a more cautious approach and refused to move without sufficient government incentives.

A complex series of events in the mid-nineties brought a dramatic change in the perception of the southwestern prairies. Spectacular gold discoveries in South Africa were partially responsible for halting the decline in world wheat prices and generating a great feeling of optimism. At the same time, as subhumid homestead lands in the United States and Canada ran out, settlers began to look to the semiarid Canadian Northwest, where the introduction of dryfarming techniques and hardier wheat strains made agriculture more profitable than ever before.<sup>40</sup> Improvements in the technology of shipping wheat overseas, such as grain elevators, railways, and large grain ships, enabled the interior prairies to become one of the world's great granaries. Aided by the new economic buoyancy and the Dominion government's revamped immigration program, western Canada attracted hundreds of thousands of American, British, and European immigrants every year. As the trickle of settlers swelled into a flood, western Canadian development once again interested foreign financiers and irrigation in southern Alberta became an attractive investment.

The irrigation projects profited also from a change in government. In 1896, Wilfrid Laurier's Liberals replaced the beleaguered Con-

servatives and a new perception of the far western prairies gained prominence. The Liberals, naturally inclined toward decentralization and the welfare of the farmer, eventually sided with the settlers. Soon they were committed to turning the semiarid rangelands into cultivated fields. This attitude was expressed most clearly by Frank Oliver, the gadfly member of parliament from Alberta and editor of the *Edmonton Bulletin*. An avowed champion of western settlement, Oliver ceaselessly attacked the large grazing leases and bitterly denounced the stock water reserves as detrimental to settlement.<sup>41</sup> Recognizing that the greater part of the southern ranching country was pastoral and "not suitable for cultivation," he suggested modifications in the homestead regulations to allow for tracts as large as 480 acres, lower fees, and different cultivation requirements, so that smaller cattle owners and farmers could use the ranges.<sup>42</sup> Oliver also advocated irrigation. "There is the strongest feeling amongst the people of the whole of the Southern country that this government must facilitate irrigation in every possible way," Oliver confided to Prime Minister Laurier. He urged the government to support irrigation with low land prices and lenient regulations.<sup>43</sup> Always concerned with the small operators, Oliver argued that it was "for the benefit of the Country that Irrigation should be entered into as largely as possible by all classes of settlers."<sup>44</sup>

Oliver found a sympathetic listener in the new minister of the interior, Manitoban Clifford Sifton. A fervent advocate of progress and efficiency, Sifton viewed prairie colonization as a problem to be solved with proper marketing techniques. Canada had surplus land that needed to be sold through aggressive advertising in Europe, Britain, and the United States.<sup>45</sup> As a newcomer to the department and still under the influence of the old bureaucrats, Sifton approved more water reserves but soon worked out his own policy.<sup>46</sup> Although not as strongly opposed to ranchers as Frank Oliver, Sifton favored farmers as the most productive users of land. Moreover, unlike his predecessors, Clifford Sifton had no qualms about

adverse publicity emanating from the demands of irrigationists, whose cause he actively supported. In 1897, after only one meeting with C. A. Magrath, Sifton promised to refund all the survey fees the AR&CC had paid on its land grant.<sup>47</sup>

This modest subsidy coincided with the rise of new markets for southern Alberta crops. The extension of the CPR through the Crowsnest Pass in 1897 provided access to the coal and metal deposits of the Crowsnest and Kootenai regions, creating new towns and an expanding market. Similarly, the Klondike gold rush stimulated the western economy and promised even more consumers. The prospect of a nearby market and the flood of immigrants onto the plains altered the image of the rangelands controlled by the AR&CC and the CPR; if irrigated, these properties could be converted into thousands of mixed farms at great profit to both companies.<sup>48</sup>

Circumstances enabled the AR&CC to alter the intended use for its land grant but also forced it to invest in expensive irrigation

technology in order to attract settlers. It was the only way to realize the economic value of its land subsidy. As Elliott Galt explained, "We had expended large sums [on the coal mines and railways] and we were compelled to go ahead and protect what we had already invested."<sup>49</sup> Necessity, rather than intention, forced the company to reassess the southwestern habitat.

Backed by the optimistic reassessment of the economical potential of the Northwest, the newly formed Canadian North-west Irrigation Company bought 250,000 acres from its parent company, the AR&CC, and hammered out an agreement with the Mormon church to supply the labor for canal construction in exchange for land. The St. Mary River irrigation scheme was a considerable undertaking, requiring 40 teams of horses in the fall of 1898 and 200 the next year (fig. 5). Ironically, heavy rains plagued the region in 1899 and so hampered the work that the ditches were not finished until the following summer. By then, the workers had excavated 115 miles of canals,



FIG. 5. *St. Mary irrigation ditches under construction.* Sir Alexander Galt Museum, Lethbridge, Alberta.

including a 32-mile branch to Lethbridge and a 22-mile extension to Stirling.<sup>50</sup>

The completion of the project and the rush of settlers into the western portion of the plains spurred the CPR to reconsider the Bow River project. Unwilling to initiate massive, expensive irrigation works, the CPR had awaited the outcome of the AR&CC's plan and contributed \$100,000 to the venture, expecting increased rail traffic to return its investment.<sup>51</sup> It accepted as part of its subsidy a solid block of land east of Calgary between the Bow and Red Deer rivers, about 140 miles long and 40 miles wide (fig. 4). Canal construction for the western section of the block began in 1903 on the Bow River just east of Calgary. By 1914 an army of steam shovels, graders, trains, and horse-drawn wagons had completed about 1,600 miles of canals and laterals. Company engineers, by then, had concluded that the elevation of the central section was too high for economical irrigation, but did commence

work on the eastern sections, an engineering challenge that dwarfed the earlier Lethbridge and Western schemes. The CPR constructed a 7,000-foot-long earthen embankment and a 720-foot concrete dam to raise the level of the Bow River near Bassano by 46 feet and divert some of its water into an irrigation canal. Completed in 1914, the Bassano dam and the large viaduct at Brooks made the CPR eastern irrigation works one of the world's foremost systems (fig. 6). In total, the CPR spent more than \$18 million to adapt its semiarid lands to intensive cultivation.<sup>52</sup> Its purpose was simple: needing traffic for the railway, the CPR was willing to expend large sums of money to attract settlers to these territories. It assumed that land sales would recover the cost of irrigation.

The two railway companies built efficient irrigation systems to sell their land grants and create traffic. Irrigation simply for land speculation led to disaster. A case in point was the

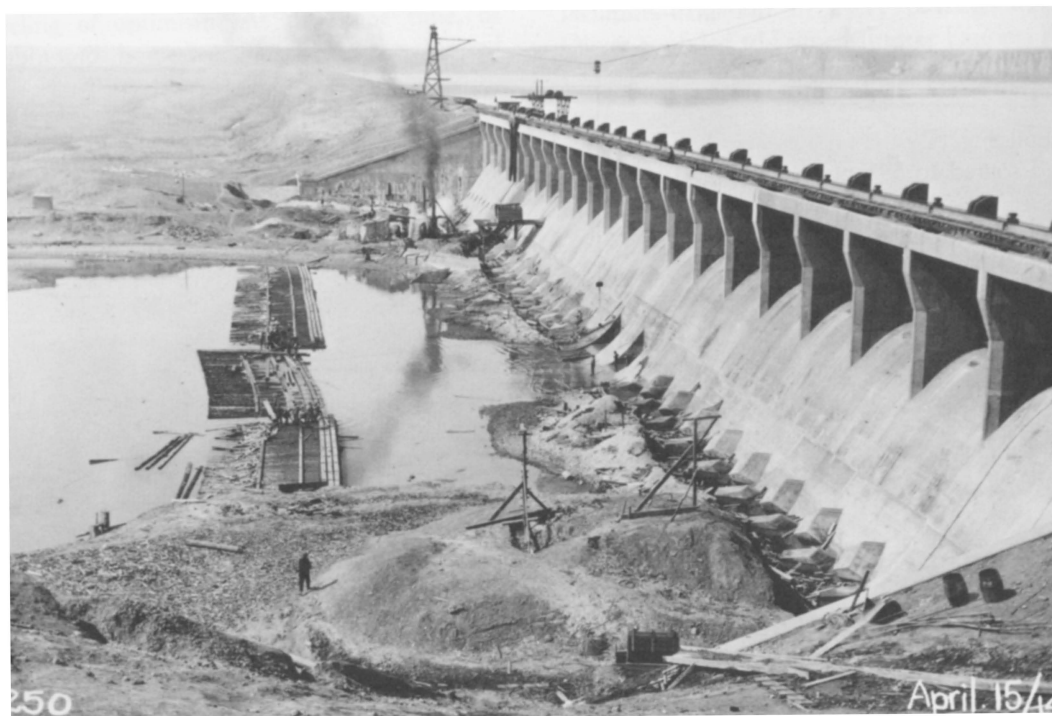


FIG. 6. *Bassano Dam under construction.* Glenbow Archives, Calgary, Alberta.

TABLE 1  
ACREAGE ACTUALLY IRRIGATED IN ALBERTA 1911 TO 1920

Year	Irrigation Districts					Total
	St. Mary	Taber	Western	Eastern	Bow	
1911	47,000		500			47,500
1912	76,200		500			76,700
1913	76,200		2,600			78,800
1914	76,200		8,448	7,806		92,454
1915	76,200		512	7,806		84,518
1916	71,281		859	1,497		73,637
1917	91,780		3,657	9,605		105,042
1918	102,900		25,191	24,440		152,531
1919	112,569		31,908	43,460		187,937
1920	60,893	2,000	4,083	60,762	4,240	131,978

Southern Alberta Land Company, a flashy combination of land speculators, politicians, and Canadian and British financiers. Shady real estate transactions, questionable charter transfers, and watered stocks placed a heavy drain on the company, while faulty designs and shoddy construction required extensive rebuilding.<sup>53</sup> By 1914 the company's land prices had soared to \$41 per acre, well beyond the region's average, and the Southern Alberta Land Company and affiliated firms were bankrupt. Without the backing of a large and diversified corporation, irrigation was not a profitable venture.

#### DRY LAND FARMING

The successful completion of the St. Mary and Bow River irrigation projects coincided with the prairie-fire-like spread of dry land farming technology. Developed on the American Great Plains, the technique utilized deep plowing, subsurface packing, repeated cultivation, and special machinery to preserve the soil's moisture during droughts (fig. 7). Like a religious revival movement, dry land cultivation swept across the American plains and into

western Canada. Its advocates traveled the circuit like country preachers and published countless tracts and articles. Railways were especially ardent disciples, viewing the new method as their salvation from sluggish land sales and anemic traffic flows.<sup>54</sup> The Northern Pacific, the Soo Line, and the CPR established demonstration farms, subsidized publication of dry farming literature, and sponsored lecture tours. Equally enthusiastic were state and provincial governments. Anxious to lure settlers to their jurisdictions and enlarge regional wealth, they also built model farms and supported exhibitions and congresses. Indicative of the pervasiveness of the new gospel was the Seventh International Dry Farming Congress held in Lethbridge, the headquarters of Alberta's first successful irrigation company. Meeting in 1912, the Congress was the largest held in North America, attracting five thousand representatives from fifteen countries.<sup>55</sup>

The onset of a number of wet years at the turn of the century helped the cause of dry land farming immeasurably. The abundant rains that had plagued construction on the St. Mary's project continued throughout the first decade. Such wet cycles were typical of the



FIG. 7. Dry farm being prepared from virgin prairie. Sir Alexander Galt Museum, Lethbridge, Alberta.

region and usually caused a greening of the environment. A similar period probably influenced Macoun's optimistic assessment of the prairies at the end of the 1870s. At the turn of the century, a recurrence of successive wet years, coupled to the general euphoria of prosperity, blinded officials and settlers to the realities of the semiarid habitat. With other areas filling rapidly, settlers poured into southern Alberta. In September 1908, Lethbridge experienced its first land rush when more than a thousand eager settlers camped on the sidewalks by the government land office, waiting for it to open.<sup>56</sup>

Dry land farming, firmly entrenched in southern Alberta by the outbreak of the First World War, was the result of yet another perception of the environment. Like irrigationists, drylanders saw nature as a force to be

conquered and tamed. Such farming appeared scientific, producing clean, orderly, finely mulched fields.<sup>57</sup> Consequently, the new technique became a potent rival to irrigation precisely when the railway companies had just spent millions of dollars to bring water to southwestern farms.<sup>58</sup>

The advent of irrigated and dry land farming completed another stage in the reassessment of the agricultural potential of the western edge of the prairies. As thousands of settlers spread across southern Alberta, ranchers were forced to retreat farther and farther into the foothills. South of Lethbridge, for example, the Mormons bought nearly 300,000 acres of rangeland, including the Cochrane Ranch. The consensus among politicians, businessmen, and settlers was that the rangelands were suitable for cultivation. Driven by a

confident belief in their ability to conquer the semiarid plains, all were convinced that southern Alberta was best suited to their own endeavors. While they quarreled about the best method of utilizing the prairie soil, both irrigationists and drylanders agreed that grazing leases and water reserves had to be abolished.<sup>59</sup>

By 1900, most officials in the Department of the Interior sided with the farmers and viewed the leases and reserves as narrow and outdated policies, especially when the powerful Calgary and Edmonton Railway Company complained that it had difficulty selecting lands because water reserves rendered so much of the surrounding area useless for cultivation.<sup>60</sup> In 1901, the department signaled its new approach by demoting William Pearce, whose uncompromising methods had earned the enmity of so many settlers. The following spring, it decided to sell many of the water reserves, and two years later it opened certain grazing leases to homesteaders. The 1905 appointment of Frank Oliver, the friend of the squatters, as minister of the interior marked the end of the rancher's hegemony on the plains. Oliver auctioned off more water reserves and tightened the leasing policy. Convinced that very little of the western prairie was unfit for agriculture, he specifically ordered that the suitability of land be judged by soil conditions and not by climate.<sup>61</sup>

The severe winter of 1906-07 contributed to the further decline of the cattle industry. Falling beef prices, unsatisfactory market conditions, and increased provincial taxes aggravated the desperate losses suffered in blinding blizzards and subzero temperatures. Meanwhile, wheat was rapidly becoming the glamorous money-making crop of the prairies. Producing better returns than beef, it increased land values and thus made the ranges too expensive for economical grazing. Many ranchers quit, causing a fundamental change in the character of the western fringe of the plains. No one appeared to notice that, at the end of the first decade, dry years were replacing the wet ones. If they did notice, dry land

farmers remained convinced their techniques could civilize the semiarid prairies.<sup>62</sup>

The mushrooming popularity of dry land farming not only drove the ranching industry into the less valuable foothills, it also hampered sales of irrigated lands. The wheat boom, associated with dry farms, made the costly irrigated properties economically unattractive. The Canadian North-west Irrigation Company, which became part of the Alberta Railway and Irrigation Company in 1904, launched a counteroffensive using the traditional techniques of pamphlets, emigration agents, and excursions to lure farmers to its lands.<sup>63</sup> But its general manager, Elliott T. Galt, also worked hard to develop the economy of the area. In 1903, he completed a branch railway from Stirling to Cardston. He also encouraged Raymond Knight, a wealthy Mormon, to cultivate sugar beets in southern Alberta. In 1901 Knight used eighty teams to break sixty thousand acres of prairie soil and in 1903 opened a sugar plant at Raymond.<sup>64</sup> Galt also donated land at Lethbridge, buildings, seed, equipment, and one laborer to Professor William Fairfield of Wyoming. Fairfield established a model farm where he experimented with a variety of grains, grasses, fruits, and trees; he also spoke to numerous organizations and advised settlers on irrigation methods. Most significantly, he devised the technique of inoculating Alberta fields with soil from Wyoming that contained the nitrogen-fixing bacteria essential to healthy alfalfa cultivation.<sup>65</sup> In all these efforts, the AR&I was handsomely supported by the progress-minded federal government, including another land subsidy of five hundred thousand acres.<sup>66</sup>

The CPR, like the AR&I, made special efforts to attract homesteaders to its lands. The company appointed J. S. Dennis, formerly the government's chief inspector of surveys, as its commissioner of irrigation.<sup>67</sup> Dennis did not necessarily reject the possibility of using the Southwest for grazing; he wanted it settled compactly with nonirrigated grazing land interspersed with irrigated fields used to grow fodder and market crops. For Dennis, irriga-

tion would do more than generate railway traffic, however; it would create densely settled prairies that would become the basis of a populated, prosperous, and industrialized West. Irrigation would, Dennis wrote to CPR President Shaughnessy, "have a marked influence not only upon the business of the company from a traffic point of view, but also upon the industrial development of the West."<sup>68</sup>

Dennis developed a special paternalistic approach to land sales. He created the Canadian Pacific Irrigation and Colonization Company to sell farms that combined irrigated and nonirrigated lands. Although he willingly sold land to individuals, he preferred group settlements because they provided an element of mutual cooperation that no private corporation could provide. The 1907 Polish Krakow colony in the western section was particularly successful, as were several Danish, Dutch, and French-Canadian efforts. Dennis also set minimum standards; a house, for example, had to cost at least \$350 and a homestead had to have one barn, several animals, and certain implements. These regulations ensured that only hard-working settlers with money would come to the region. Fairly soon, the CPR began to

break and seed some of the plots before settlers arrived, partly because it wanted to attract the preferred British emigrants, many of whom were inexperienced farmers, but also to ensure that those who did buy company lands had substantial capital to invest in the enterprise.

The ready-made farm became the basis for a new strategy Dennis established in 1911. Because sales were lagging, Dennis conducted a comprehensive inventory of the lands, consolidated them into small manageable districts, and rid them of speculators. By the end of the year, his department had drafted two hundred blueprints for established farms where CPR crews prepared the land for the first crop and built a house and barns. The Bassano area, for instance, was totally planned much like a modern-day subdivision; it included 550 ready-made farms of 160 acres arranged in groups of twenty-five. At Brooks, the Duke of Sutherland established twelve small farms for the sons of his tenants in Scotland, all clustered around one elaborate central farm where he spent some time each summer. Such paternalistic, centralized planning ensured that the region looked prosperous and attractive to prospective buyers.

Hope for success, or at least its appearance,



FIG. 8. One of several CPR supply farms in western Canada. Provincial Archives of Alberta: Photograph Collection A10545.



demanding that the CPR teach farmers proper irrigation and cultivation techniques. It established a large demonstration farm at the headquarters of the western section in Strathmore and four smaller model farms in the eastern region (fig. 8). It sold farmers improved livestock and experimented with animal husbandry.<sup>69</sup> At the time when wheat was the preferred crop, the CPR used free seed, demonstrations, competitions, and prizes to encourage farmers to grow alfalfa.<sup>70</sup> It also instructed all its watermasters and ditchriders to plant trees and gardens around their homes, to keep them tidy and well painted, as an example to immigrants.<sup>71</sup> The CPR's program embodied an ideal; the railway company sought to transform radically what it perceived to be barren wilderness into an orderly, neat, and civilized society.

The CPR, which also owned vast quantities of land south of the Bow River, expanded its education campaign to dry land farmers. Assuming that diversified operations provided more stable incomes, the company wanted settlers to lessen their dependence on wheat and grow other crops. Throughout the prewar years, it sponsored mixed-farming trains, lectures, and courses to persuade farmers to cultivate corn, vegetables, even fruit, and to raise cows, pigs, and chickens. The CPR established a model farm at Vulcan to demonstrate the advantages of diversification. Its efforts, actively supported by bureaucrats, scientists, and bankers, were of little avail: wheat remained the principal crop on dry land farms because it was ideally suited to the flat, deep soils of the Southwest, required little labor, and furnished the best returns for a relatively small investment. By 1911, more than three-quarters of the crop seeded south of the Bow River was wheat and southwestern farmers continued to import vegetables, butter, eggs, and sometimes feed for their draft horses.<sup>72</sup>

Irrigated and dry land farming radically altered the landscape of the western edge of the Canadian prairies. The short experiment of replacing the wild herds with domestic cattle

had failed by the end of the nineteenth century, once the land took on economic value and had to be exploited as cost-effectively as possible. Homesteaders pushed the cattlemen into the foothills and transformed most of the open natural grasslands into fenced and cultivated fields. Farming, whether irrigated or dry land, drew settlers to southern Alberta and indirectly stimulated the growth of agriculturally related industries, of towns and cities.<sup>73</sup> This is what western promoters intended. They believed that the intensive settlement of the Northwest was to be the basis of a wealthy, industrialized nation. "Agriculture," A. S. Dawson, the CPR's irrigation engineer asserted, "may be considered as the trunk from which all business and industry must emanate and prosper."<sup>74</sup> One of the orators at a 1907 irrigation convention maintained that the intensive cultivation of land invariably led to industrial development; to the construction of dairies, abattoirs, breweries, sugar refineries, canneries, flour mills, even textile factories.<sup>75</sup> Citing ancient history, the CPR's Dawson argued that the world's great civilizations had been built in response to arid environments.<sup>76</sup> Confident in their ability to adapt the environment to their needs, these western nation-builders saw cultivation as the first step toward a civilized, industrialized nation.<sup>77</sup>

The businessmen who invested in the railways of southern Alberta had a somewhat less exalted view of the development of the region. C. A. Magrath best expressed this more practical attitude when he confessed that his company built irrigation works because "there was no alternative: the coal company had the lands and it became necessary to do something, as otherwise it looked as if the lands could never be utilized."<sup>78</sup> His employer, Elliott Galt, revealed that the AR&CC's land could never have been settled and could not have been made valuable "except by means of large expenditures on the part of the Irrigation Company."<sup>79</sup> The owners of the land therefore perceived it as an investment, and they had to transform it to protect their investment.

Governments actively encouraged the in-



tensive settlement of the western plains. Although they supported irrigation as one method of settling the prairies, they preferred the cheaper dry land technique. Both federal and provincial administrations employed propaganda to lure thousands of settlers to the region. Convinced that the intensive settlement of the West was in the national interest, they disregarded the insistent warnings of local officials that the western edge needed irrigation, that the return of "the average seasons" would force farmers from the land.<sup>80</sup> Unfortunately, Canadian policymakers measured the nation's progress in terms of placing people on the land, of plowed acres and miles of fences. Their obsession blinded them to the aridity of the region and caused them to view it as well suited for cultivation.

The optimistic assessments of government and business—their confident belief that modern agricultural techniques could tame the environment and adapt it to national and entrepreneurial needs—caused individual disappointments. Even irrigationists were disillusioned as the high cost of irrigated land and water rentals eroded profits. Too many families learned at excessive cost that their exuberant trust in modern technology had been misplaced. Adapting the environment was not a painless, easy task. Not until the irrigation companies surrendered their systems to farm cooperatives in the 1940s did irrigation become financially feasible.<sup>81</sup>

For the drylanders the disillusionment was more bitter. In 1910, expected spring rains dissipated and yielded to hot, searing winds that crumbled the pulverized mulch of summer-fallowed land to dust and carried it away in dark clouds. Although quickly forgotten in the euphoria of rising wheat prices, insatiable markets, and bumper crops, the dust storms caused irreparable damage and were an ominous portent of the future.<sup>82</sup> In following decades, repeated droughts, always accompanied by high winds and hungry grasshoppers, drove thousands of homesteaders from their land.<sup>83</sup> Painstaking rehabilitative efforts were needed to rejuvenate the prairie soil and

revitalize dry land farming.<sup>84</sup> While dry land technology made Canada the leader in wheat exports, it brought heartache to thousands. Only after farmers assessed their environment realistically could they adapt it to their requirements.

## NOTES

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12. David H. Breen, *The Canadian Prairie West and the Ranching Frontier, 1874-1924* (Toronto: University of Toronto Press, 1983), p. 43.

13. *Ibid.*, pp. 60-76.

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16. Pearce to Smith, 10 September 1886; Pearce to the secretary of the Department of the Interior, 11 November 1886, PAC, Department of the Interior Records, vol. 1204, file 141376, pt. 1.

17. Cochrane, et al., to White, 9 October 1886; Cochrane to the minister of the interior, 21 October 1886; Canadian North-west Territories Stock Association to the minister of the interior, 3 December 1886, PAC, Department of the Interior Records, vol. 1204, file 141576, pt. 1; Canada, Order in Council, 13 December 1886. The correspondence on the water reserve policy is extensive. A few key examples are: Pearce to the secretary of the Department of the Interior, 24 June 1893; McEachren to the Department of the Interior, 23 July 1895, PAC, Department of the Interior Records, vol. 1204, file 141376, pt. 2; Pearce to the secretary of the Department of the Interior, 10 June 1896; Pearce to Cochrane, 15 September 1896, vol. 1204, file 141376, pt. 3; McLellan to Daly, 5 August 1893, vol. 1183, file 22852.

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